

ABSTRACT OF THE DISCLOSURE

A MALDI mass spectrometer directs a laser shot onto a MALDI sample to generate a sample spectrum which is analyzed to determine if the sample spectrum meets a predetermined criteria. If so, subsequent laser shots are directed to
5 predetermined locations on the MALDI sample. In essence, if the analysis of a previous laser shot indicates that a "sweet spot" of the MALDI sample has be located, subsequent laser shots may be directed to areas proximate to the previous shot thereby allowing the sweet spot to be thoroughly sampled. A method of operating a MALDI mass spectrometer is also disclosed.